

## PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for October, 1892, as determined from reports of about 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

In October the monthly precipitation is usually greatest along the north Pacific and east Florida coasts, where it exceeds 6.00. On the west Gulf, south Atlantic, and New England coasts, in an area extending from east-central Wisconsin over northern Lower Michigan, and along the Pacific coast north of the 40th parallel, the normal amount exceeds 4.00. East of a line traced from Minnesota to Texas the amount varies from 2.00 to 4.00. In the Rocky Mountain and plateau regions, save in the valley of the upper Columbia river, the average amount for October is less than 1.00. In the lower Colorado valley an entire absence of precipitation is not unusual in October.

In October, 1892, the monthly precipitation exceeded 8.00 on the east Florida coast between the 26th and 28th parallels, the greatest amount, 14.00, being noted at Jupiter. In extreme northwest Washington a depth of 7.62 was recorded at Neah Bay. The monthly amount exceeded 6.00 in areas in the Southwest and 4.00 over central and eastern Nova Scotia, along the immediate Pacific coast north of the 40th parallel, and in an area extending from south-central Texas to southwestern Missouri. East of the Mississippi River and south of the Lake region, over the northern, western, and southern Rocky Mountain and plateau regions, and in central and southern California, the monthly precipitation was less than 1.00, and in areas in those regions less than 0.50 fell.

## DEPARTURES FROM NORMAL PRECIPITATION.

The monthly precipitation was generally deficient, except in an area covering the middle and southern Rocky Mountain regions, central and northeastern Texas, western Arkansas, and southern Missouri. A slight excess was noted over Cape Breton Island, in the eastern and western Saskatchewan valleys, and middle California. The most marked deficiency in precipitation was noted along the Atlantic coast from Virginia to South Carolina, on the east Maine coast, and at Galveston, Tex., where it was 3.00 to 4.00, and the monthly amount was 2.00, or more, deficient east of the Mississippi River, and in areas on the north Pacific coast. The greatest excess in precipitation was reported at Denver, Colo., and Abilene, Tex., where it was about 3.00, and the excess was more than 2.00 from central Texas over western Arkansas, and in east-central Colorado.

Considered by districts the average percentage of the normal in districts where the precipitation was in excess was about as follows: Southeastern slope of the Rocky Mountains, 170; middle-eastern slope of the Rocky Mountains, 149; northeastern slope of the Rocky Mountains, 138. In districts where the precipitation was deficient the percentage of the normal was about as follows: Middle Atlantic states, 12; Ohio Valley and Tennessee, 16; south Atlantic states and extreme northwest, 25; lower lake region, 36; New England, 39; east Gulf states, 40; south Pacific coast, 41; upper Mississippi valley and northern plateau region, 44; upper lake region, 57; Key West, Fla., 68; north Pacific coast, 72; middle plateau

region, 80; southern plateau region, 84; Missouri Valley, 87; middle Pacific coast, 93; west Gulf states, 94.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for October for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for October, 1892; (4) the departure of the current month from the average; (5) and the extremes for October during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of Oct.	(2) Length of record.	(3) Total for Oct., 1892.	(4) Departure from average.	(5) Extremes for October.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
<i>Arizona.</i>	<i>Inches.</i>	<i>Years.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>		<i>Inches.</i>	
Fort Apache .....	1.30	16	0.55	- 0.75	4.68	1881	0.00	1878, 1891
Fort Mohave .....	0.26	20	0.00	- 0.26	2.00	1874	0.00	
Whipple Barracks .....	0.66	21	1.41	+ 0.75	1.76	1889	0.00	
<i>Arkansas.</i>								
Keesees Ferry .....	4.14	11	3.10	- 1.04	18.11	1883	0.10	1886
<i>California.</i>								
Fort Bidwell .....	1.16	20	1.28	+ 0.12	3.61	1889	T.	1887
Riverside .....	0.33	12	.....	.....	1.28	1889	0.00	1886, 1891
<i>Colorado.</i>								
Las Animas .....	0.55	11	0.08	- 0.47	1.19	1885	0.03	1890
<i>Florida.</i>								
Merritts Island .....	5.58	14	3.59	- 1.99	11.94	1886	1.33	1889
<i>Georgia.</i>								
Forsyth .....	2.83	18	0.50	- 2.33	7.86	1879	T.	1891
<i>Idaho.</i>								
Boise Barracks .....	0.99	19	0.77	- 0.22	4.06	1883	0.02	1891
Fort Sherman .....	1.77	9	1.06	- 0.71	2.82	1884	0.59	1882
<i>Illinois.</i>								
Centralia .....	3.56	12	.....	.....	8.55	1883	0.76	1886
<i>Indiana.</i>								
Lafayette .....	2.54	10	1.22	- 1.22	5.56	1883	0.73	1886
<i>Indian Territory.</i>								
Fort Supply .....	1.42	12	1.85	+ 0.43	4.99	1889	0.00	1873, 1875
<i>Iowa.</i>								
Cresco .....	2.35	21	1.51	- 0.84	8.06	1881	0.13	1889
<i>Kansas.</i>								
Independence .....	2.81	20	4.22	+ 1.41	7.16	1883	0.19	1874
Salina .....	2.35	10	2.22	- 0.13	8.50	1883	0.40	1885
<i>Louisiana.</i>								
Grand Coteau .....	2.52	9	0.47	- 2.05	4.98	1890	T.	1889
<i>Maine.</i>								
Orono .....	4.20	21	1.75	- 2.45	7.51	1888	1.09	1882
<i>Maryland.</i>								
Cumberland .....	2.43	21	0.24	- 2.19	6.65	1890	0.00	1879
<i>Michigan.</i>								
Kalamazoo .....	2.89	16	0.31	- 2.58	6.57	1881	0.31	1892
<i>Missouri.</i>								
Sedalia .....	2.88	14	2.04	- 0.84	7.07	1883	0.51	1878
<i>Montana.</i>								
Fort Custer .....	1.29	13	1.53	+ 0.24	4.60	1891	0.24	1885
<i>Nebraska.</i>								
Fort Robinson .....	1.50	9	4.74	+ 3.24	8.60	1887	T.	1888
Genoa (near) .....	1.62	16	1.36	- 0.26	3.48	1891	0.25	1879
<i>Nevada.</i>								
Browns .....	0.38	20	0.30	- 0.08	1.36	1884	0.00	*
Carson City .....	0.42	15	0.30	- 0.12	1.61	1882	T.	*
<i>New Hampshire.</i>								
Hanover .....	3.41	21	1.54	- 1.87	5.57	1873	0.53	1876
<i>New Mexico.</i>								
Deming .....	0.82	10	1.21	+ 0.39	2.13	1887	0.00	1882, 1891
Fort Wingate .....	0.92	21	1.39	+ 0.47	2.75	1872	0.00	*
<i>New York.</i>								
Cooperstown .....	3.35	21	1.79	- 1.56	5.91	1890	1.19	1887
Plattsburg Barracks .....	2.53	21	1.12	- 1.41	5.15	1873	0.46	1879
<i>North Carolina.</i>								
Lenoir .....	3.32	21	T.	- 3.32	9.50	1885	T.	1892
<i>Oklahoma.</i>								
Fort Reno .....	3.56	9	5.21	+ 1.65	6.82	1883	0.30	1891
Fort Sill .....	2.53	20	5.69	+ 3.16	8.02	1877	T.	1875
<i>Oregon.</i>								
Bandon .....	5.00	14	5.32	+ 0.32	11.80	1889	1.16	1880
Eola .....	3.12	21	.....	.....	8.01	1876	0.30	1874
<i>Pennsylvania.</i>								
Dyberry .....	3.48	21	0.82	- 2.66	7.39	1890	0.82	1892
Grampian .....	3.06	15	0.59	- 2.47	6.36	1890	0.59	1892
Wellsboro .....	3.57	13	0.33	- 3.24	7.50	1885	0.33	1892
<i>South Carolina.</i>								
Statesburg .....	2.93	11	0.19	- 2.74	8.15	1887	0.02	1884
<i>South Dakota.</i>								
Fort Sully .....	0.51	21	0.74	+ 0.23	1.51	1874	0.02	1872
<i>Texas.</i>								
Austin .....	2.43	20	3.40	+ 0.97	8.06	1871	0.12	1878
Silver Falls .....	2.23	6	3.63	+ 1.40	3.63	1892	1.01	1891
<i>Utah.</i>								
Terrace .....	0.18	18	0.00	- 0.18	0.75	1889	0.00	*
<i>Vermont.</i>								
Strafford .....	3.28	19	1.90	- 1.38	6.80	1873	1.20	1882
<i>Virginia.</i>								
Dale Enterprise .....	3.17	12	0.19	- 2.98	12.60	1885	0.19	1892

## Departures from average precipitation—Continued.

State and station.	(1) Average for the month of Oct.	(2) Length of record.	(3) Total for Oct., 1892.	(4) Departure from average.	(5) Extremes for October.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Washington.	Inches.	Years	Inches.	Inches.	Inches.		Inches.	
Fort Townsend.....	1.94	16	1.96	+ 0.02	3.58	1875	1.00	1885
West Virginia.								
Parkersburg.....	2.33	7	.....	.....	4.95	1888	0.61	1887
Wisconsin.								
Embarrass.....	3.71	21	3.50	- 0.21	8.75	1881	0.40	1872, 1889
Madison.....	2.78	21	0.36	- 2.42	9.12	1881	T.	1889
Wyoming.								
Fort Washakie.....	1.41	9	0.45	- 0.96	3.50	1891	0.44	1880, 1888

\* Frequently.

## PRECIPITATION, JANUARY TO OCTOBER.

For the period January to October, 1892, inclusive, the precipitation averaged about normal in the east Gulf states, the Ohio Valley and Tennessee, the upper lake region, the extreme northwest, the Missouri Valley, on the northeast and middle-eastern slopes of the Rocky Mountains, and over the middle plateau region. In the lower lake region and the upper Mississippi valley the precipitation was one-tenth to two-tenths greater than usual, and in the New England, middle and south Atlantic and west Gulf states, on the southeast slope of the Rocky Mountains, over the southern and northern plateau regions, and along the Pacific coast the precipitation was seven-tenths to nine-tenths of the normal amount for the period named.

## YEARS OF GREATEST PRECIPITATION FOR OCTOBER.

At Abilene and Silver Falls, Tex., and Denver, Colo., the precipitation for the current month was the greatest reported for October during the respective periods of observation. The greatest precipitation for October was noted on the middle and south Pacific coasts in 1889; in an area extending from Maryland over eastern Tennessee and the interior of North Carolina in 1885; from the lower Missouri over the middle Mississippi and middle Ohio valleys in 1883; from the middle Missouri over the Red River of the North Valley in 1882; from the upper Mississippi valley over Lower Michigan in 1881; and from eastern Pennsylvania over eastern New York and southern New England in 1877.

## YEARS OF LEAST PRECIPITATION FOR OCTOBER.

At Eastport, Me., Narragansett Pier and Block Island, R. I., New Haven, Conn., Atlantic City, N. J., Philadelphia, Dybberry, Grampian, and Wellsboro, Pa., Lynchburg and Dale Enterprise, Va., Charlotte and Lenoir, N. C., Knoxville, Chattanooga, and Nashville, Tenn., Cincinnati and Toledo, Ohio, Indianapolis, Ind., Detroit and Kalamazoo, Mich., and Dubuque and Davenport, Iowa, the precipitation for the current month was the least reported for October during the respective periods of observation. The least precipitation for October was noted from the northeast slope of the Rocky Mountains over the Red River of the North and extreme upper Mississippi valleys in 1889; over the greater part of New York in 1882; over the greater part of Kansas and Oklahoma and Indian territories in 1879; and from western Pennsylvania over Maryland and Virginia, and in the lower Mississippi valley in 1874.

## EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in October, 1892:

## Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Florida.....	2	Indian Territory.....	1

## Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Texas.....	20	1-2, 2-3, 14, 14-15, 18, 19-20, 20, 20-21, 21, 21-22, 22, 22-23, 23.	Colorado.....	2	11-12, 12-13.
Louisiana.....	11	13, 13-14, 21-22, 22-23.	Mississippi.....	2	22-23, 23.
Florida.....	7	1-2, 4, 10-11, 11-12, 23, 23-24.	Alabama.....	1	22-23.
Arkansas.....	3	14, 18-19, 31.	California.....	1	9.
			Indian Territory.....	1	13, 18.
			Nebraska.....	1	11-13.
			Oklahoma.....	1	13.
			Wyoming.....	1	11-12.

## Precipitation to equal or exceed 1.00 in 1 hour.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Florida.....	3	4, 7, 8, 10, 12.	Minnesota.....	1	1.
Texas.....	3	3, 13, 31.	Mississippi.....	1	31.
Iowa.....	1	14.	Nebraska.....	1	12.
Louisiana.....	1	20.	Wisconsin.....	1	2.

## Table of excessive precipitation, October, 1892.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Am't.	Day.	Am't.	Time.	Day.
Alabama.	Inches.	Inches.		Inches.	h. m.	
Mobile.....	2.55	22-23				
Arkansas.						
Fulton.....	2.55	18-19				
Kirby.....	2.74	14				
Madding.....	3.94	31				
California.						
Upper Mattole.....	3.65	9				
Colorado.						
Denver.....	2.58	12-13				
Pikes Peak.....	3.22	11-12				
Florida.						
Gaineville.....	3.07	23-24				
Green Cove Springs.....	3.20	23				
Hypoluxo.....	10.81	1-2				
Jupiter.....	14.00	3.82	4	3.80	2 00	4
Do.....				1.05	1 00	7
Do.....	5.95	10-11		2.55	1 30	10
Mieco.....	3.37	10-11				
Mullet Key.....				1.50	1 30	8
Orlando.....	2.88	11-12				
Titusville.....	2.81	11-12		2.60	0 50	12
Indian Territory.						
Gwendale.....	3.50	13				
Do.....	3.00	18				
South McAlester.....	10.25					
Iowa.						
Centerville.....				1.20	1 00	14
Louisiana.						
Cameron.....	3.65	13-14				
Emilie.....	3.43	21-22				
Farmerville.....	3.00	13				
Houma.....	2.67	13-14				
Lawrence.....	6.00	22				
Luling.....	4.06	25				
Marksville.....				1.50	0 45	20
Maurepas.....	3.35	23				
New Iberia.....	2.57	13				
Schriever.....	3.21	23				
Thibodeaux.....	2.60	22				
West End.....	3.30	23				
Minnesota.						
Saint Paul.....				1.03	1 00	1
Mississippi.						
Logtown.....	3.50	23				
Ship Island.....	3.55	22-23				
Missouri.						
Chillicothe a.....				1.18	0 40	31
Nebraska.						
Fort Robinson.....	4.21	11-13				
Franklin.....				1.31	0 45	12
Oklahoma Territory.						
Guthrie.....	3.06	13				

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Texas.</i>						
Brady .....		<i>Inches.</i>	<i>Inches.</i>	<i>Inches</i>	<i>h. m.</i>	
Brazoria.....		4.59	19-20			
Brownwood.....		3.79	1-2			
Camp Eagle Pass.....		3.20	21			
Columbia.....		3.20	22-23			
Corsicana b.....		4.01	1-2			
Duval.....		3.70	14			
Do.....		3.55	3			
Forestburg.....		3.15	18			
Fort Clark.....		4.25	23			
Gainesville.....		2.75	22			
Highland.....		5.98	21-22			
Huntsville.....		3.50	23			
Longview.....				1.20	1 00	13
Menardville.....		2.70	14			
Mountain Spring.....		4.50	21			
Orange.....		2.65	20-21			
Palestine.....		3.01	14-15			
Panther.....		3.82	14			
Quannah.....				1.00	0 30	31
Red River City.....		2.50	20			
Roby.....		2.50	20-21			
Venus.....		4.00	20-21			
Victoria.....		3.20	2	1.72	1 30	3
Do.....		4.30	14			
<i>Wisconsin.</i>						
Embarrass.....				1.00	1 00	2
<i>Wyoming.</i>						
Laramie b.....		3.90	11-12			

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<i>Louisiana.</i>						
Port Eads	12.50	4.78	5-6			
<i>Missouri.</i>						
McCune		3.00	11			

## MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during October, 1892, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Maximum rainfall in one hour or less.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		Inch.		Inch.	
Atlanta, Ga.	0.05	8	0.07	8	0.16	8
Bismarck, N. Dak.	0.07	17	0.11	17	0.37	17
Boston, Mass.	0.03	5	0.05	5	0.28	5
Buffalo, N. Y.	0.03	19	0.05	19	0.15	19
Cincinnati, Ohio.	0.10	7	0.12	7	0.20	7
Chicago, Ill.	0.06	31	0.08	31	0.24	31
Cleveland, Ohio.	0.07	18	0.11	18	0.26	18
Denver, Colo.	0.03	12	0.05	12	0.28	12
Detroit, Mich.	0.02	28	0.03	28	0.10	28
Dodge City, Kans.	0.10	19	0.20	19	0.40	19
Duluth, Minn.	0.01	14	0.02	14	0.08	14
Eastport, Me.	0.07	30	0.12	30	0.31	30
Galveston, Tex.	0.22	31	0.35	31	0.57	31
Indianapolis, Ind.*						
Jacksonville, Fla.	0.07	23	0.12	23	0.18	23
Jupiter, Fla.	0.35	7, 10	0.60	7	1.99	4
Kansas City, Mo.	0.25	13	0.35	13	0.45	13
Key West, Fla.	0.21	5	0.30	5	0.52	5
Marquette, Mich.	0.10	14	0.17	14	0.51	14
Memphis, Tenn.	0.05	31	0.10	31	0.14	31
Milwaukee, Wis*						
New Orleans, La.	0.02	22	0.03	22	0.18	22
New York, N. Y.*						
Norfolk, Va.						
Omaha, Nebr.	0.05	31	0.10	31	0.30	31
Philadelphia, Pa.*						
Philadelphia Water Works					0.10	8
Pittsburg, Pa.*						
Portland, Oregon.	0.02	13	0.04	13	0.10	13
Saint Louis, Mo.	0.03	14	0.05	14	0.21	14
Saint Paul, Minn.	0.20	1	0.30	1	1.03	1
Salt Lake City, Utah.	0.02	11	0.04	11	0.15	11
San Diego, Cal.					0.10	28
San Francisco, Cal.	0.10	16	0.15	16	0.40	16
Savannah, Ga.	0.03	11	0.05	11	0.20	11
Tampa, Fla.	0.03	1	0.05	1	0.16	23
Washington, D. C.	0.04	8	0.06	8	0.20	8
Wilmington, N. C.	0.03	4	0.06	4	0.15	4-5

\*Self-register out of order.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for October during the last 23 years:

## Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Florida	13	Kansas	1
Texas	10	Kentucky	1
North Carolina	7	Maine	1
Georgia	5	Mississippi	1
New Hampshire	5	New Jersey	1
Oregon	5	Ohio	1
Washington	5	Rhode Island	1
Louisiana	4	Tennessee	1
New York	4	Arizona	0
California	4	Colorado	0
Michigan	3	The Dakotas	0
Maryland	2	Delaware	0
Missouri	2	Idaho	0
South Carolina	2	Minnesota	0
Massachusetts	2	Montana	0
Virginia	2	Nebraska	0
Alabama	1	Nevada	0
Arkansas	1	Pennsylvania	0
Connecticut	1	Utah	0
District of Columbia	1	Vermont	0
Illinois	1	West Virginia	0
Indiana	1	Wisconsin	0
Indian Territory	1	Wyoming	0
Iowa	1	New Mexico	0

## Excessive daily precipitation (24 hours).

State.	No. years noted.	State.	No. years noted.
Florida	17	Michigan	5
North Carolina	15	Ohio	5
Texas	15	Arkansas	4
Louisiana	13	Oregon	4
Georgia	12	Tennessee	4
Kansas	11	The Dakotas	4
Illinois	10	Wisconsin	4
Pennsylvania	10	Kentucky	3
New York	10	Minnesota	3
South Carolina	9	New Hampshire	3
Alabama	8	Washington	3
Maryland	8	Indiana	2
Missouri	8	New Mexico	1
Rhode Island	8	California	1
Massachusetts	8	Utah	1
Virginia	8	Vermont	1
Maine	7	West Virginia	1
Connecticut	7	Delaware	1
Nebraska	7	Montana	1
New Jersey	7	Wyoming	1
Mississippi	6	Arizona	0
Iowa	6	Colorado	0
District of Columbia	5	Idaho	0
Indian Territory	5	Nevada	0

## Excessive hourly precipitation.

State.	No. years noted.	State.	No. years noted.
Texas	10	Arizona	0
Iowa	5	California	0
Florida	4	Colorado	0
Kansas	4	Delaware	0
North Carolina	4	Idaho	0
Illinois	4	The Dakotas	0
Louisiana	3	Kentucky	0
Nebraska	3	Maine	0
Alabama	2	Massachusetts	0
District of Columbia	2	Michigan	0
Georgia	2	Minnesota	0
Indiana	2	Montana	0
Arkansas	1	Nevada	0
Connecticut	1	New Hampshire	0
Indian Territory	1	New Mexico	0
Maryland	1	Oregon	0
Mississippi	1	Rhode Island	0
Missouri	1	Tennessee	0
New Jersey	1	Utah	0
New York	1	Virginia	0
Ohio	1	Vermont	0
Pennsylvania	1	Washington	0
South Carolina	1	West Virginia	0
Wisconsin	1	Wyoming	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for October during the last 23 years:

## Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
Reidsville, N. C. ....	Inches.		Mayport, Fla. ....	Inches.	
Sims, Cal. ....	29.09?	1885		20.03	1880
	28.57	1889			

## Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			Inches.	
Fernandina, Fla. ....	13.14	20-21, 1882	Gainesville, Tex. ....	5.98	21-22, 1892
Brackettville, Tex. ....	13.08	1-2, 1881	Jupiter, Fla. ....	5.95	10-11, 1892
Saint Augustine, Fla. ....	10.31	9-10, 1880	Fort Meade, Fla. ....	5.75	9, 1891
Key West, Fla. ....	9.24	20-21, 1883	Amelia, Fla. ....	5.67	1, 1891
Newport, Fla. ....	8.20	8, 1876	Jacksonville, Fla. ....	5.15	1, 1890
Galveston, Tex. ....	7.77	2, 1871	New Bedford, Mass. ....	5.15	23-24, 1890
Fort Robinson, Nebr. ....	7.07	23, 1887	Abbeville, La. ....	5.08	21, 1890
Birdsnest, Va. ....	6.85	7-8, 1891	Trial, S. C. ....	5.02	22-23, 1890
Lawrence, La. ....	6.00	22, 1892			

## One hour and less.

Station and state.	Amount.	Time.	Date.
	Inches.	h. m.	
Jupiter, Fla. ....	0.35	0 05	7, 1892
Do. ....	0.35	0 05	10, 1892
Savannah, Ga. ....	0.35	0 05	22, 1890
Key West, Fla. ....	0.35	0 05	9, 1891
Cleveland, Ohio. ....	0.30	0 05	13, 1890
Galveston, Tex. ....	0.30	0 05	30, 1890
Jupiter, Fla. ....	0.30	0 05	1, 1890
Key West, Fla. ....	0.30	0 05	10, 1890
New Orleans, La. ....	0.30	0 05	15, 1890
Washington, D. C. ....	0.28	0 05	19, 1891
Brownsville, Tex. ....	1.20	0 06	23, 1884
Jupiter, Fla. ....	0.60	0 10	7, 1892
Fort Scott, Kans. ....	1.80	0 20	2, 1881
Cresco, Iowa. ....	1.11	0 20	10, 1878
Galveston, Tex. ....	2.12	0 25	30, 1877
Abilene, Tex. ....	1.50	0 25	24, 1885
Des Moines, Iowa. ....	2.30	0 30	15, 1880
Titusville, Fla. ....	2.60	0 50	12, 1892

## SNOW (in inches and tenths).

Chart V shows the depth of snowfall reported for the month.

The heaviest snowfall of the month was reported in the middle Rocky Mountain region, where it was 20 to 40 at elevated stations in Colorado and southeastern Wyoming; at Pikes Peak, Colo., the total depth was 59. At Halls Peak, N. Mex., 9.6 fell. At Humphrey, N. Y., the monthly amount was 7.5, and at Lake View and Joseph, Oregon, the total depth for the month was 7.5 and 5, respectively. In the Atlantic coast states snow fell as far south as Maryland; in the Alleghany Mountain region as far south as southern West Virginia; at a majority of the Lake stations; in the plateau region to southern New Mexico and central Arizona; and over the greater part of the middle and northern plateau regions.

On the 1st trace of snow fell at Houlton, Me.; on the 5th a light fall of snow was noted in northern and western New England, northern and western New York, in the Catskill Mountains, New York, and trace was reported as far south as the District of Columbia and West Virginia. On the 11th and 12th heavy snow fell in the middle Rocky Mountain region, interrupting railroad traffic and causing loss of life and live stock. On the 25th, 29th, and 30th light snow fell in the mountain districts of New England.

DEPTH OF SNOW ON GROUND ON THE 15TH AND AT THE CLOSE OF THE MONTH.

On the 15th the depth of snow on the ground was 29 at Pikes Peak, Colo.; 0.8 at Toano, Nev.; 0.5 at Empire Ranch, Nev.; and trace at Mill City, Nev.

At the close of the month the snow on the ground measured 22 at Pikes Peak, Colo.; 0.5 at Farmington, Me.; and trace at Stofiel, Nev.

## MONTHLY SNOWFALL.

Monthly snowfall of 1 inch or more was reported as follows, and in states and territories where the maximum depth was below that amount the station reporting the greatest is given:

*Arizona.*—Show Low, 1. *California.*—Fort Bidwell, 0.5. *Colorado.*—Pikes Peak, 59; Climax, 43; Red Cliff, 33.5; Dillon, 26; Husted, 25.5; Table Rock, 25; Castle Rock, 24.5; Smoky Hill Mine, 24; Villa Grove, 23.7; Gold Hill, 19.4; Cumbres, 19; Ward District, 18; San Luis, 16.9; Downing, 16.3; Manhattan and Steamboat Spring, 14; Georgetown, 13.4; Dumont and Saint Cloud, 13; Stamford, 12.5; Box Elder, 12; Pagoda (near), 10; Livermore, 8; Alma and Del Norte, 7.5; Como (near), 6.6; Thon, 6.5; East Dale, Moraine, and Sanborn, 6; Carson and Collbran, 5; Garnet, 4.5; La Jara, 4; Montrose, 3.7; Surface Creek, 3; Paonia and Vilas, 2; Parachute, 1.8; Delta and Springfield, 1.

*District of Columbia.*—Washington, D. C., trace. *Idaho.*—Idaho Falls, 2; Henrys Lake, 1.5; Garden Valley, 1. *Kansas.*—Altoona, trace. *Maine.*—Farmington and Mayfield, 2. *Michigan.*—Alpena, 1. *Minnesota.*—Saint Vincent, trace. *Montana.*—Havre, 2; Hogan, 1.2. *Nebraska.*—Ansley and Valentine, trace. *Nevada.*—Virginia City, 1.5; Stofiel and Toano, 1. *New Hampshire.*—Berlin Mills, 1.2. *New Mexico.*—Halls Peak, 9.6; Chama, 2.5; Estalina Springs, 2.2; Coolidge, 1. *New York.*—Humphrey, 7.5; Arcade, 3.4; Constableville and South Canisteo, 1.

*North Dakota.*—Medora, 3.3; White Earth, 3; Fort Stevenson, 2.7. *Ohio.*—Akron, Bangorville, Cleveland, Columbus, Ellsworth, Findlay, Hiram, New Comerstown, and Weymouth, trace. *Oregon.*—Lake View, 7.5; Joseph, 5; Baker City, 1. *Pennsylvania.*—Blue Knob, 2.5. *South Dakota.*—Ashcroft, 1. *Utah.*—Levan, Loa, and Provo City, 0.5. *Vermont.*—Chelsea and Strafford, 1. *Washington.*—Rosalia, 0.5. *West Virginia.*—Bluefield and Davis, trace. *Wisconsin.*—Crandon, 0.7. *Wyoming.*—Laramie (b), 20; Saratoga, 16; Cheyenne, 10; Casper, 4; Camp Pilot Butte, 3; Fort Yellowstone, 1.5.

The first snow of the season was reported as follows: 1st, Houlton, Me. 3d, Burlington, Vt. 5th, Washington, D. C.; Taunton, Mass.; Port Huron, Mich.; Saint Vincent, Minn.; Buffalo, Ithaca, and Rochester, N. Y.; Cleveland, Ohio; Blue Knob, Clarion, Du Bois, Dyberry, Erie, Harrisburg, Le Roy, and Salem Corners, Pa.; Pleasant Hill, W. Va. 6th, Strafford, Vt. 11th, Montrose, San Luis, and Smoky Hill Mine, Colo.; Idaho Falls, Idaho; Losee and Salt Lake City, Utah; Casper, Cheyenne, Lander, Laramie, and Saratoga, Wyo. 12th, Denver and Pueblo, Colo.; Fort Stanton, Monero, Socorro, and Taos, N. Mex.; Yule, N. Dak.; Levan, Utah.

13th, Fort Ripley, Minn. 14th, Fort Sherman, Idaho; Coolidge, N. Mex.; Rosalia, Wash. 15th, Helena, Mont.; Winnemucca, Nev.; Baker City, Oregon. 16th, Shasta, Cal.; Fort Missoula, Havre, and Miles City, Mont.; Carson City, Nev.; Medora, Stevenson, and Willow City, N. Dak.; Ashcroft and Spearfish, S. Dak.; Evanston, Wyo. 17th, Garden Valley, Idaho; Bismarck, Dickinson, Fort Buford, and White Earth, N. Dak.; Provo, Utah. 18th, Henrys Lake, Idaho; Grafton, Milton, and Woodbridge, N. Dak. 21st, Estalina Springs and Fort Wingate, N. Mex. 22d, Sault Ste. Marie, Mich.; Halls Peak, N. Mex.; Crandon, Wis. 23d, Dodge City, Kans.; Marquette and Rockland, Mich.

24th, Cheboygan, Mich.; Northfield, Vt. 25th, Alpena and Berrien Springs, Mich.; Mount Pleasant, N. C.; Columbus, Ohio; Pittsburg, Pa.; Bluefield and Davis, W. Va. 26th, Dubuque, Iowa; Milwaukee, Wis. 28th, Show Low, Ariz.;

Lincoln, Wis. 29th, Farmington, Me.; Monroe, Mass.; Manistee and Mottville, Mich.; Berlin Mills, N. H.; Jamestown, N. Y.; Florence, Wis. 30th, Ansley and Kennedy, Nebr.; Loa, Utah; Lusk, Wyo. 31st, Duluth, Minn.; Valentine, Nebr.; Chama, N. Mex.; Castlewood, Highmore, Hotch City, Millbank, and Wolsey, S. Dak.

## HAIL.

Description of the more severe hailstorms of the month is given under "Local storms." Hail was reported as follows: 1st, Indiana, Minnesota, Montana, and Wisconsin. 2d, Montana. 3d, Michigan, New York, and Ohio. 4th, Maryland, New York, North Carolina, and Pennsylvania. 5th, Maryland, Massachusetts, Ohio, and Pennsylvania. 8th, Alabama and California. 10th, Washington. 11th, California and Washington. 12th, Nebraska and Oregon. 13th, Missouri. 14th, California and Missouri. 15th, California. 16th,

California, Connecticut, Massachusetts, Nebraska, and New York. 17th and 18th, Kansas. 21st, Colorado. 22d, New Mexico. 23d, Michigan and New York. 25th, New York, North Carolina, and Ohio. 27th, California. 28th, Arizona, California, Michigan, and Rhode Island. 29th, Arizona, Massachusetts, New Hampshire, Ohio, and Pennsylvania. 30th, Kansas and Texas. 31st, Arkansas, Colorado, Idaho, Iowa, Missouri, and Texas.

## SLEET.

Sleet was reported as follows: 5th, New York, Ohio, and Pennsylvania. 6th, Vermont. 9th, Pennsylvania. 11th, California and Utah. 12th, New Mexico. 22d, Pennsylvania. 23d, Kansas. 24th, Arkansas and Michigan. 25th, Georgia, Michigan, North Carolina, and Pennsylvania. 26th, Pennsylvania. 29th, Michigan, Ohio, and Pennsylvania. 30th, Nebraska. 31st, Nebraska, Nevada, and Vermont.

## WINDS.

The prevailing winds for October, 1892, are shown on Chart II by arrows flying with the wind. In the New England and middle Atlantic states and the lower lake region the winds were generally from southwest to northwest; in the south Atlantic states, from north to northeast; over the Florida Peninsula, from northeast to east; in the Gulf States, from northeast to southeast; in the Ohio Valley and Tennessee, from northwest to northeast; in the upper lake region, the upper Mississippi valley, on the northeast slope of the Rocky Mountains, and along the middle Pacific coast, from south to northwest; in the extreme northwest, from west to north; in the Missouri Valley and on the southeast slope of the Rocky Mountains, from southeast to south; on the middle-eastern slope of the Rocky Mountains, over the middle plateau region, and along the north Pacific coast, from southeast to southwest; over the southern plateau region, from east to south; along the south Pacific coast, from west to northwest; and over the northern plateau region, variable.

## HIGH WINDS (in miles per hour).

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 8th, 51, e., at Tatoosh Island, Wash. 9th, 64, se., at Fort Canby, Wash. 10th, 72, s., at Fort Canby, Wash. 12th, 72, sw., at Amarillo, Tex.; 64, nw., at Pueblo, Colo. 16th, 88, sw., at Pikes Peak, Colo.; 50, s., at Amarillo, Tex.; 50, se., at Huron, S. Dak.; 50, se., at Dodge City, Kans. 17th, 52, se., at Huron, S. Dak.; 50, s., at Saint Vincent, Minn. 22d, 50, ne., at New Orleans, La. 24th, 57, e., at Tatoosh Island, Wash. 25th, 62, e., at Tatoosh Island, Wash. 26th, 50, e., at Tatoosh Island, Wash. 27th, 60, e., at Tatoosh Island, Wash. 28th, 58, nw., at Chicago, Ill.; 56, sw., at Detroit, Mich.; 54, sw., at Cleveland, Ohio; 52, w., at Grand Haven, Mich.; 50, nw., at Milwaukee, Wis. 29th, 60, nw., at Cleveland, Ohio; 55, sw., at Detroit, Mich.; 50, nw., at Port Huron, Mich.

## LOCAL STORMS.

**1st.**—High wind unroofed dwellings and barns in eastern Maine. A heavy thunder and hail storm moved east over Saint Paul, Minn., in the afternoon; 2 buildings were struck by lightning. In Lavaca Bay, Tex., vessels were damaged by high wind.

**2d.**—At Marquette, Mich., a thunderstorm began in the early morning and ended 10.15 a. m.; a house was struck by lightning, and telephone wires were burned out.

**3d.**—In the evening a house in Cleveland, Ohio, was struck by lightning. A house and a barn near Mesquite, Tex., were struck by lightning.

**4th.**—A report from Eden Center, N. Y., states that 3 funnel-shaped clouds were observed over Lake Erie, and that one

of the clouds caused a waterspout which lasted about 30 minutes. The Weather Bureau station at Kittyhawk, N. C., was struck by lightning. In the evening a wind, rain, and hail storm moved northeast over Washington, N. C.; a church was struck by lightning.

**5th.**—A heavy thunder and rain storm occurred at Ventura, Cal., in the evening; the electric light plant was struck by lightning.

**7th.**—At Vevay, Ind., a house was struck by lightning. A northwest gale, with rain, prevailed at Marquette, Mich.; several vessels were obliged to seek shelter in the harbor.

**8th.**—At Solomons, Md., a thunderstorm prevailed from 5.50 to 7 p. m.; trees and outbuildings were blown down. In the evening a thunderstorm, with rain and a heavy squall of wind, caused minor damage at Mobile, Ala. The Milwaukee steamer from Grand Haven, Mich., was compelled to return to port on account of heavy seas and high wind on Lake Michigan. High southwest winds and heavy rain prevailed along the middle and north Pacific coasts.

**11-12th.**—At Cheyenne, Wyo., high northwest wind and snow began 10.25 p. m., 11th, and continued during the 12th; seven inches of snow fell; traffic on railroads was blocked; and telegraphic communication was cut off. At Pueblo, Colo., rain changed to snow at 10.30 a. m., 12th, and snow changed to rain in the afternoon, with high west to northwest winds which reached a velocity of 64 miles per hour at intervals between noon and 1 p. m. Considerable damage was caused by wind. Trains on lines running north were delayed by heavy snow. At Denver, Colo., rain alternated with snow in the morning, and the wind reached a velocity of 48 miles per hour from the northwest at 8 a. m., 12th. The storm was very severe throughout eastern Colorado; several persons and a large number of cattle were frozen. High wind and heavy rain caused considerable damage in Indian Territory. At Titusville, Fla., a heavy rainstorm occurred about noon, 12th; 2.60 inches of rainfall were recorded in 50 minutes.

**13th.**—At Kansas City, Mo., a thunder, rain, and hail storm began in the afternoon, and rain continued until midnight; a building was struck by lightning. At Eureka, Cal., rain fell from a cloudless sky from 10.30 to 11.30 p. m.; the raindrops were large and scattered; amount of rainfall, .02 inch.

**16th.**—A severe thunderstorm occurred in Connecticut and southern Massachusetts. At North Stonington, Conn., a man was reported killed by lightning. Near Bridgeport, Conn., lightning struck a barn, severely shocking one person and killing 2 horses. San Francisco, Cal., was visited by a heavy rain and thunder storm in the morning.